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Nitta et al.

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(54) **PUMP UNIT AND BREATHING ASSISTANCE DEVICE**

(75) Inventors: **Kazufuku Nitta**, Kawaguchi (JP); **Jun Nitta**, Kawaguchi (JP)

(73) Assignee: **Metran Co. Ltd.**, Saitama (JP)

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See application file for complete search history.

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Primary Examiner — Alexander Comley

(74) *Attorney, Agent, or Firm* — Porzio, Bromberg & Newman, P.C.

(57) **ABSTRACT**

A pump unit can achieve significant size reduction while maintaining the performance thereof. Micropumps are arranged in a lattice pattern with rows and columns, and a discharge port of at least a micropump arranged in the most downstream row is directly connected to an integrated discharge port. The pump unit further includes: a discharge direct-connection mechanism for connecting respective discharge ports of a plurality of micropumps in a middle row directly to the integrated discharge port; an intake direct-connection mechanism for connecting respective intake ports of the micropumps directly to a fluid to be supplied first; a series-connection mechanism for connecting a discharge port of a micropump in an upstream row directly to an intake port of a micropump in a downstream row; and a controller for controlling the discharge direct-connection mechanism, the intake direct-connection mechanism, and the series-connection mechanism.

8 Claims, 18 Drawing Sheets

